

First ISCCP Regional Experiment (FIRE) Marine Stratocumulus National Center for Atmospheric Research (NCAR) Electra Aircraft Langley DAAC Data Set Document



Summary:

The First ISCCP Regional Experiments have been designed to improve data products and cloud/radiation parameterizations used in general circulation models (GCMs). Specifically, the goals of FIRE are (1) to improve the basic understanding of the interaction of physical processes in determining life cycles of cirrus and marine stratocumulus systems and the radiative properties of these clouds during their life cycles and (2) to investigate the interrelationships between the ISCCP data, GCM parameterizations, and higher space and time resolution cloud data.

To-date, four intensive field-observation periods were planned and executed: a cirrus IFO (October 13 - November 2, 1986); a marine stratocumulus IFO off the southwestern coast of California (June 29 - July 20, 1987); a second cirrus IFO in southeastern Kansas (November 13 - December 7, 1991); and a second marine stratocumulus IFO in the eastern North Atlantic Ocean (June 1 - June 28, 1992). Each mission combined coordinated satellite, airborne, and surface observations with modeling studies to investigate the cloud properties and physical processes of the cloud systems.

This document provides information for the FIRE_MS_ELECTRA data set.

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1. Data Set Overview:

Data Set Identification:

FIRE_MS_ELECTRA:

First ISCCP Regional Experiment (FIRE) Marine Stratocumulus
National Center for Atmospheric Research (NCAR) Electra Aircraft
Data (FIRE_MS_ELECTRA)



Data Set Introduction:

Data were collected from the NCAR Electra aircraft during the FIRE Marine Stratocumulus experiment in July 1987. The data were produced by the NCAR Research Aviation Facility (RAF) Data Management Group, with the GENPRO-II data processing software. The format of these data include a header file and a data file which corresponds to all or part of a particular aircraft flight.

Objective/Purpose:

...

Summary of Parameters:

Air Flow Angle
Altitude
Clouds
Humidity
Ice
Irradiance
Liquid Water Content
Mixing Ratio
Pressure
Temperature
Wind Direction
Wind Speed

Discussion:

...

Related Data Sets:

...

2. Investigator(s):

Investigator(s) Name and Title:

...

Title of Investigation:

First ISCCP Regional Experiment (FIRE)

Contact Information:

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3. Theory of Measurements:

...

4. Equipment:

Sensor/Instrument Description:

Collection Environment:



Distributed by the Atmospheric Science Data Center
<http://eosweb.larc.nasa.gov>



...

Source/Platform:

NCAR ELECTRA

Source/Platform Mission Objectives:

...

Key Variables:

Air Flow Angle
Altitude
Clouds
Humidity
Ice
Irradiance
Liquid Water Content
Mixing Ratio
Pressure
Temperature
Wind Direction
Wind Speed

Principles of Operation:

...

Sensor/Instrument Measurement Geometry:

...

Manufacturer of Sensor/Instrument:

...

Sensor/Instrument:

200V
260X
ALTIMETER
ASASP
DEICED SENSORS
FLOW ANGLE SENSORS
FSSP
GUST PROBE
HOT-WIRE
HYGROMETER
LIDAR
PMS PROBE
PRESSURE TRANSDUCER
PRT-5
PRT-6
PYRANOMETER
PYRGEOMETER
VIDEO CAMERA

Calibration:

Specifications:

...

Tolerance:

...

Frequency of Calibration:



...

Other Calibration Information:

...

5. Data Acquisition Methods:

...

6. Observations:

Data Notes:

...

Field Notes:

...

7. Data Description:

Spatial Characteristics:

Spatial Coverage:

| Data Set Name | Min Lat | Max Lat | Min Lon | Max Lon |
|---------------------|---------|---------|---------|---------|
| FIRE_MS_ELEC TRA | -5.00 | 37.00 | -125.00 | -116.00 |

Spatial Coverage Map:

...

Spatial Resolution:

...

Projection:

...

Grid Description:

...

Temporal Characteristics:

Temporal Coverage:

| Data Set Name | Begin Date | End Date |
|-----------------|------------|------------|
| FIRE_MS_ELECTRA | 06-29-1987 | 07-18-1987 |

Temporal Coverage Map:

...

Temporal Resolution:



Distributed by the Atmospheric Science Data Center
<http://eosweb.larc.nasa.gov>



...

Data Characteristics:

Parameter/Variable:

Each of the Electra data record has 183 variables. Each variable is defined as a 4 bytes unsigned integer. The unsigned integer values have to be converted to real numbers for correct reading. Usually the variables are sampled at 1 Hz per second (per genpro cycle), but some variables are sampled at higher rate. The sample read routine automatically retrieves the information for all defined parameters, and interprets the binary data accordingly.

Variable Description/Definition:

...

Unit of Measurement:

...

Data Source:

...

Data Range:

...

Sample Data Record:

...

8. Data Organization:

Data Granularity:

A general description of data granularity as it applies to the IMS appears in the [EOSDIS Glossary](#).

Electra data sets have 29 header-data-file pairs for 10 flights. All but flight 9, which has two, have three header-data-file pairs. Each flight is named ms_eltflt#X_flighttime, where # ranges from 01 to 10, X is one of a, b or c (except flight 09 has only a and b), and "flighttime" has the format of yymmdd to indicate the date of the flight, e.g., ms_eltflt07b_870711. The flight name is the same as the granule name. The header files are named granule_name.hdr, and the data files are named granule_name.dat. A header file contains the variable names (or called parameters), and the information regarding sampling rate, scale factors, data size, etc. for the parameters. The data file contains data values of parameters over a specified time period.

Data Format:

The data are in native binary format (GENPRO).

9. Data Manipulations:

Formulae:

Derivation Techniques and Algorithms:

...

Data Processing Sequence:

Processing Steps:

...

Processing Changes:

...



Calculations:

Special Corrections/Adjustments:

...

Calculated Variables:

...

Graphs and Plots:

Images are not available for this data set.

10. Errors:

Sources of Error:

...

Quality Assessment:

Data Validation by Source:

...

Confidence Level/Accuracy Judgement:

...

Measurement Error for Parameters:

...

Additional Quality Assessments:

...

Data Verification by Data Center:

...

11. Notes:

Limitations of the Data:

...

Known Problems with the Data:

...

Usage Guidance:

...

Any Other Relevant Information about the Study:

...

12. Application of the Data Set:

...

13. Future Modifications and Plans:

There are no plans to modify these data sets.



14. Software:

Software Description:

Sample read software is available for this data set.

Software Access:

The software can be obtained through the Langley DAAC. Please refer to the contact information below. The software can also be obtained at the same time the user is ordering this data set.

15. Data Access:

Contact Information:

Langley DAAC User and Data Services Office
NASA Langley Research Center
Mail Stop 157D
Hampton, Virginia 23681-2199
USA
Telephone: (757) 864-8656
FAX: (757) 864-8807
E-mail: support-asdc@earthdata.nasa.gov

Data Center Identification:

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Hampton, Virginia 23681-2199
USA
Telephone: (757) 864-8656
FAX: (757) 864-8807
E-mail: support-asdc@earthdata.nasa.gov

Procedures for Obtaining Data:

The Langley DAAC Information Management System (IMS) is an on-line system that features a graphical user interface (GUI) that allows to query the Langley DAAC dataset holdings, to view pre-generated browse products, and to order specific data products. Users may also request data by letter, telephone, electronic mail (INTERNET), or personal visit.

The Langley DAAC User and Data Services (UDS) staff provides technical and operational support for users ordering data. The Langley DAAC Handbook is available in a postscript file through the IMS for users who want detailed information about the Langley DAAC holdings. Users may also obtain a copy by contacting:

Langley DAAC User and Data Services Office
NASA Langley Research Center
Mail Stop 157D
Hampton, Virginia 23681-2199
USA
Telephone: (757) 864-8656
FAX: (757) 864-8807
E-mail: support-asdc@earthdata.nasa.gov
URL: <http://eosweb.larc.nasa.gov>

Data Center Status/Plans:

The Langley DAAC will continue to archive this data. There are no plans to reprocess.

16. Output Products and Availability:

There are no output products available at this time.

17. References:



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18. Glossary of Terms:

[EOSDIS Glossary.](#)

19. List of Acronyms:

NASA - National Aeronautics Space Administration

URL - Uniform Resource Locator

[EOSDIS Acronyms.](#)

20. Document Information:

Document Revision Date:

October 07, 1996; May 28, 1997; November 24, 1997

Document Review Date:

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Document ID:

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Citation:

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Document Curator:

Langley DAAC User and Data Services Office

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